I CLAIM:

1. An interface device, comprising: a network port to interface with a packet switched network;

a telephony port to interface with a telephony device;

a data port to interface with a data terminal; and

a processor coupled to each of the ports.

2. The interface device of claim 1 further comprising a transceiver coupled between the processor and the network port.

3. The interface device of claim 2 wherein the transceiver comprises a media access controller (MAC) coupled to the processor, and a modulator and a demodulator both disposed between the MAC and the network port.

4. The interface device of claim 3 wherein the modulator and the demodulation each

comprises quadrature amplitude modulation.

5. The interface device of claim 1 wherein the processor determines whether voices

signals from the network port are destined for the data port or the telephony port and couples the

voice signals to one of the data port and telephony port based on such determination.

6. The interface device of claim 1 further comprising a voice circuit coupled between

the telephony port and the processor.

7. The interface device of claim 6 wherein the processor formats voice signals flowing

from the telephony port to the processor into voice signal packets, and formats voice signals

flowing from the processor to the telephony port into a PSTN telephony format

8. The interface device of claim 7 wherein the telephony format comprises pulse code

modulation.

9. The interface device of claim 6 wherein the voice circuit comprises a jitter buffer

to receive voice signal packets of varying delay from the processor and compensating for the

delay variation of the received voice signal packets.

10. The interface device of claim 9 wherein the jitter buffer comprises a voice queue

which buffers the received voice signals for a holding time, and a voice synchronizer which

adaptively adjusts the holding time of the voice queue.

11. The interface device of claim 6 wherein the voice circuit comprises a tone exchange to exchange DTMF signals between the telephony port and the processor.

12.

The interface device of claim 6 wherein the voice circuit comprises a voice decoder

to decode packets of voice signal flowing from the processor to the telephony port, a voice

activity detector to detect the voice signals without speech, and a comfort noise generator to

insert comfort noise in place of the voice signals without speech.

13. The interface device of claim 6 wherein the voice circuit comprises a voice decoder to decode packets of the voice signals flowing from the processor to the telephony port, a voice activity detector to detect lost voice signals, and a lost packet recovery engine to process the voice signals to compensate for the lost voice signals.

14. The interface device of claim 6 wherein the voice circuit comprises a voice encoder to encode the voice signals flowing from the telephony port to the processor, and a voice activity detector to suppresses the voice signals without speech.

15. The interface device of claim 14 wherein the voice circuit further comprises a

comfort noise estimator to generate comfort noise parameters when the voice activity detector

suppresses the voice signals without speech.

16. The interface device of claim 6 wherein the voice circuit further comprises a decoder

to decode packets of the voice signals flowing from the processor to the telephony port, and an

echo canceller capable of cancelling decoded voice signal echos on voice signals flowing from

the telephony port to the processor.

17. A gateway, comprising:

a network port to interface with a packet switched network;

a telephony port to interface to a telephony device;

a data port to interface to a data terminal;

a processor coupled to each of the ports; and

a transceiver disposed between the processor and the network port, the transceiver being capable of transmitting and receiving packets of voice signals, packets of data signals, and

a television signal.

18. The gateway of claim 17 wherein the transceiver comprises a media access

controller (MAC) coupled to the processor, and a modulator and a demodulator both disposed

between the MAC and the network port.

19.

The gateway of claim 18 wherein the modulator and the demodulation each

comprises quadrature amplitude modulation.

20. The gateway of claim 17 wherein the processor determines whether the voices

signals from the network port are destined for the data port or the telephony port and couples the

voice signals to one of the data port and telephony port based on such determination.

21 The gateway of claim 17 further comprising a voice circuit coupled between the

telephony port and the processor.

22. The gateway of claim 21 wherein the processor formats voice signals flowing from the telephony port to the processor into packets of voice signals, and formats the packets of voice signals flowing from the processor to the telephony port into a PSTN telephony format.

23. The gateway of claim 22 wherein the telephony format comprises pulse code modulation.

24. The gateway of claim 21 wherein the voice circuit comprises a jitter buffer to receive the packets of voice signals of varying delay from the processor and compensating for the delay variation of the received packets.

25. The gateway of claim 24 wherein the jitter buffer comprises a voice queue stored in volatile memory which buffers the received voice signals for a holding time, and a voice synchronizer which adaptively adjusts the holding time of the voice queue.

26. The gateway of claim 21 wherein the voice circuit comprises a tone exchange to exchange DTMF signals between the telephony port and the processor.

27. The gateway of claim 21 wherein the voice circuit comprises a voice decoder to decode packets of voice signals flowing from the processor to the telephony port, a voice activity detector to detect the voice signals without speech, and a comfort noise generator to insert comfort noise in place of the voice signals without speech.

28. The gateway of claim 21 wherein the voice circuit comprises a voice decoder to decode packets of the voice

signals flowing from the processor to the telephony port, a voice

activity detector to detect lost voice signals, and a lost packet recovery engine to process the voice signals to compensate for the lost voice signals.

29. The gateway of claim 21 wherein the voice circuit comprises a voice encoder to encode the voice signals flowing from the telephony port to the processor, and a voice activity

detector to suppresses the voice signals without speech.

30. The gateway of claim 29 wherein the voice circuit further comprises a comfort noise estimator to generate comfort noise parameters when the voice activity detector suppresses the voice signals without speech.

31. The gateway of claim 21 wherein the voice circuit further comprises a decoder to

decode packets of the voice signals flowing from the processor to the telephony port, and an echo

canceller capable of cancelling decoded voice signal echos on voice signals flowing from the

telephony port to the processor.

32. The gateway of claim 17 further comprising a voice circuit integrated with a processor in a ASIC form factor connected to a pstn telephony port

33. The gateway of claim 17 further comprising a voice circuit integrated with a processor in a ASIC form factor connected to a packet switched telephony port

34. The gateway of claim 17 further comprising a voice circuit integrated with a processor in a ASIC form factor connected to a wireless telephony port

35. A method of processing signals, comprising:

exchanging voice signals between a packet switch network and a telephony device;

exchanging data signals between the packet based network and a data terminal;

and

receiving a television signal from the packet switch network.

36. The method of claim 32 further comprising demodulating the signals flowing from the packet switched network to the telephony device and the data terminal, and modulating the signals flowing from the telephony device and the data terminal to the packet based network.

37. The method of claim 33 wherein the modulator and the demodulation of the

signals each comprises quadrature amplitude modulation.

38. The method of claims 35 wherein the data signal exchange comprises receiving and the data signals to the data terminal over a local area network.

39. The method of claim 35 wherein the voice signal exchange comprises receiving

and transmitting the voice signals to the telephony device over a telephone line.

40. The method of claim 39 wherein the voice signal exchange further comprises exchanging second voice signals between the packet based network and a second telephony, the second voice signal exchange comprising receiving and transmitting the second voice signals to the second telephony device over the LAN.

41. The method of claim 35 wherein the voice exchange comprises formatting the voice signals flowing from the telephony device to the packet based network into voice signal packets, and formatting the voice signals flowing from the packet based network to the telephony

device into a PSTN telephony format.

42. The method of claim 41 wherein the telephony format comprises pulse code modulation.

43. The method of claim 35 wherein the voice signal exchange comprises receiving

packets of voice signals of varying delay, buffering the received packets, and compensating for the delay variation of the received packets.

44. The method of claim 35 further comprising exchanging DTMF signals between the packet based network and the telephony device.

45. The method of claim 35 wherein the voice signal exchange comprises detecting the voice signals flowing from the packet switched network to the telephony device not comprising speech, and inserting comfort noise in place of the non-speech voice signals.

46. The method of claim 35 wherein the voice signal exchange comprises processing the voice signals flowing from the packet switched network to the telephony device to compensate for the lost voice signals.

47. The method of claim 35 wherein the voice signal exchange comprises suppressing voice signals without speech flowing from the telephony device to the packet switched network.

48. The method of claim 35 wherein the voice signal exchange comprises decoding the voice signals flowing from the packet switched network to the telephony device, and cancelling decoded voice signal echos on the voice signals

flowing from the telephony device to the packet switched network.